actually hammered together from 180° up to contact of the inner surfaces; they possess, however, at the point at which the straight portion of the bar goes into the bend on the inner side a very characteristic crack, which with high phosphorus content, assumes a wedge-like form (vide Figs. 14, 15, aud 1(>).

Judging the composition of the metal on the basis of the forged test is a matter of practical experience.

Since it is possible in the basic open-hearth furnace to completely remove the phosphorus before the carbon, it is also possible to interrupt the process at any dosired carbon content, and to produce in. this manner good, pure material; but likewise on the grounds discussed, care must thon bo takon that on attainment of this C content, metal and slug lmvo H0 far approximated to a state of equilibrium that thoy have become practically inactive on one another.

(c) GASKS TN IRON.

The molten metal comes in contact with tho lm\ ^asow COa, CO, H, N and 0, in addition to which (10 originalos in itn interior. The metal absorbs all these gasos and iwrmitu a portion thereof to escape during solidification, whilst another portion is retained after solidification.

A. Euhfuss gives in "Stall! and Fastm," 1897, p. -ltt, the following analyses of gases, which escaped from tho mould during casting:—

No.	C02.	0.	~ CO.	n.	! ™. ; 1Hr;;;::ui;l	
1	7-4	1-0	52-8	27"H>	HH'BG	sank
2	7-2	o-oi	6O1	2H)	BH-;J i	stood
3	8-2	1-10	63-8	18-0	UNO	sank
4	2-1	0-30	69-4	1 6-8	88-00	
5	3-9	1-0	70-0	19-0	94-00	
6	8-3	0-2	73-3	13*3	95-10	nt« K »d
7	3-0	0-7	77-0	6-0	80-70	H
8	5-2	0-5	81-7	C-3	92-70	rose*,
9	4-0	o-o	82-0	4-8	90-80	stood
10	2-7	0-3	85-2	4-0	9^-20	ro.so